LIFE EXPECTANCY ON A RISE: A MYTH OR FACT

Final Data Analysis Project

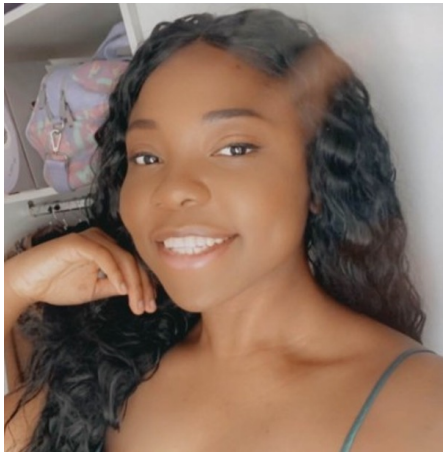
OSAHENOMASE OMORUYI

ME & DATA?

I was born in Nigeria, moved to Birmingham, UK aged 12

Very Curious [Why? Why? Why?] and highly motivated

BSc **Biomedical Science** then I have been working in NHS labs.



WHY DATA BOOTCAMP?

- Became a first-time mother
- In search of a hybrid/remote job
- Wanted to somehow navigate into tech
- Luckily found out about the bootcamp
- Discovered my passion for story-telling and data visualisation

BOOTCAMP CONTENT

I have learnt and used different tools, skills and knowledge derived from the bootcamp including **Excel**, **SQL** and **Tableau** and a bit of **Python**.

OBJECTIVES

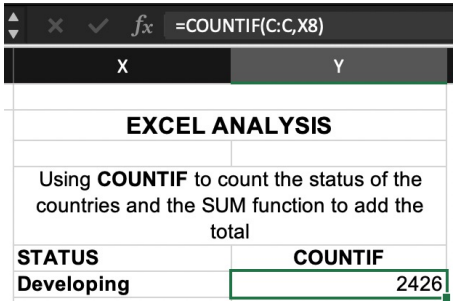
Being from a science background, I analysed the **healthcare** dataset aiming to answer these questions:

- How does life expectancy vary over different countries: is it lower in less developed countries in comparison with developed countries?
- Does adult mortality and infant deaths impact life expectancy?
- What impact does BMI have on life expectancy
- In 2015, what were the top 10 countries with the highest life expectancy vs lowest?

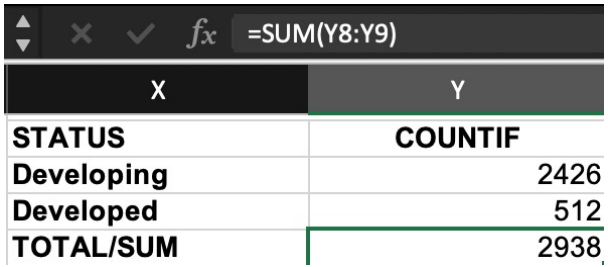
EXCEL ANALYSIS

EXCEL ANALYSIS	
Using **COUNTIF** to count the status of the countries and the SUM function to add the total	
STATUS	**COUNTIF**
Developing	2426
Developed	512
TOTAL/SUM	2938
Finding the value for the **maximum** life expectancy using **MAX** function	
MAX life expectancy =	89
Finding out first country on the dataset with the MAX life expectancy value using **XLOOKUP**:	
Belgium	

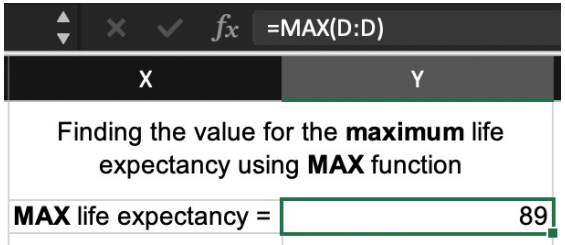
Using COUNTIF Function



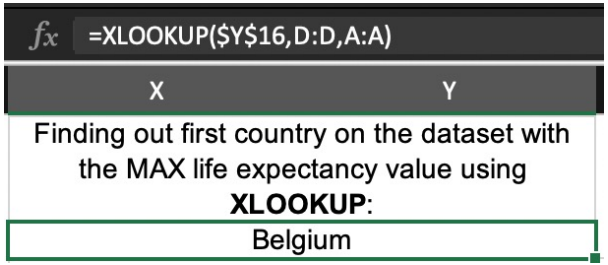
Using SUM Function



Using MAX Function



Using XLOOKUP Function



SQL ANALYSIS

TOP 10 COUNTRIES WITH HIGHEST VS LOWEST LIFE EXPECTANCY IN 2015

```
28    -- Find top 10 countries with highest life expectancy in 2015
29 •  SELECT country, life_expectancy, status
30    FROM project.health
31    WHERE year = 2015
32    ORDER BY life_expectancy DESC
33    LIMIT 10;
```

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Result Grid Filter Rows: Search Export:

country	life_expectancy	status
Slovenia	88.0	Developed
Denmark	86.0	Developed
Cyprus	85.0	Developed
▶ Chile	85.0	Developing
Japan	83.7	Developed
Switzerland	83.4	Developed
Singapore	83.1	Developed
Spain	82.8	Developed
Australia	82.8	Developed
Iceland	82.7	Developed

```
35    -- Find top 10 countries with the lowest life expectancy in 2015
36 •  SELECT country, life_expectancy, status
37    FROM project.health
38    WHERE year = 2015
39    ORDER BY life_expectancy ASC
40    LIMIT 10;
```

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Result Grid Filter Rows: Search Export:

country	life_expectancy	status
▶ Sierra Leone	51.0	Developing
Angola	52.4	Developing
Central African Republic	52.5	Developing
Chad	53.1	Developing
Côte d'Ivoire	53.3	Developing
Lesotho	53.7	Developing
Nigeria	54.5	Developing
Somalia	55.0	Developing
South Sudan	57.3	Developing
Cameroon	57.3	Developing

SQL ANALYSIS

BMI VS LIFE EXPECTANCY IN 2015 & POTENTIAL CONTRIBUTING HEALTH FACTORS

```
81  SELECT country, life_expectancy, measles, HIV_AIDS, CASE
82    WHEN bmi < 18.5 THEN 'Underweight'
83    WHEN bmi BETWEEN 18.5 AND 24.9 THEN 'Healthy'
84    WHEN bmi BETWEEN 25 AND 29.9 THEN 'Overweight'
85    WHEN bmi BETWEEN 30 AND 39.9 THEN 'Obese'
86    ELSE 'Morbidly Obese'
87    END AS 'BMI Range'
88    FROM project.health
89    WHERE year = 2015
90    ORDER BY 2 DESC;
```

1:93

Result Grid Filter Rows: Search Export:

country	life_expectancy	measles	HIV_AIDS	BMI Range
Slovenia	88.0	18	0.1	Underweight
Denmark	86.0	9	0.1	Morbidly Obese
Chile	85.0	9	0.1	Morbidly Obese
Cyprus	85.0	0	0.1	Underweight
Japan	83.7	35	0.1	Overweight

```
81  SELECT country, life_expectancy, measles, HIV_AIDS, CASE
82    WHEN bmi < 18.5 THEN 'Underweight'
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87    END AS 'BMI Range'
88    FROM project.health
89    WHERE year = 2015
90    ORDER BY 2 ASC;
```

16:90

Result Grid Filter Rows: Search Export:

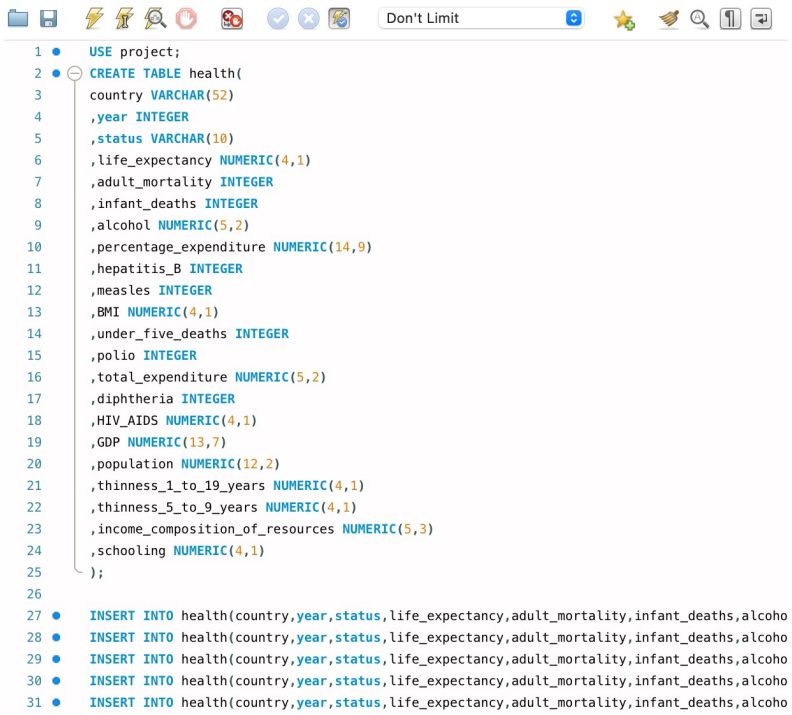
country	life_expectancy	measles	HIV_AIDS	BMI Range
Sierra Leone	51.0	607	0.5	Healthy
Angola	52.4	118	1.9	Healthy
Central African Republic	52.5	150	4.4	Healthy
Chad	53.1	418	2.8	Healthy
Côte d'Ivoire	53.3	65	1.9	Overweight

TROUBLESHOOTING

OH NO! PROBLEM! –
“is it me or mySQLWorkbench acting up?”

- *An issue was encountered when using the ‘import wizard’.*
- *I kept having **422** records instead of **2938**!*

- *Issue had to be resolved.*
- *Using our best friend ‘Google’, research was done to convert the csv file to SQL script.*
- *The SQL schema was then inputted manually using Data Definition Language (DDL) such as the CREATE syntax, to create the table within the ‘project’ database.*



MINI PYTHON ANALYSIS

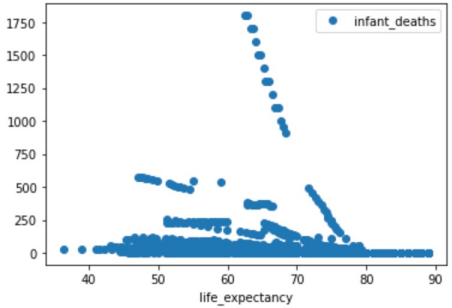
```
[ ] #To get summary about my dataset.
    #Total count = 2938, Max life_expectancy = 89, Min life_expectancy = 36.3
    health.describe()
```

	year	life_expectancy	adult_mortality	infant_deaths	alcohol	percentage_expend
count	2938.000000	2928.000000	2928.000000	2938.000000	2744.000000	2938.0
mean	2007.518720	69.224932	164.796448	30.303948	4.602861	738.2
std	4.613841	9.523867	124.292079	117.926501	4.052413	1987.9
min	2000.000000	36.300000	1.000000	0.000000	0.010000	0.0
25%	2004.000000	63.100000	74.000000	0.000000	0.877500	4.6
50%	2008.000000	72.100000	144.000000	3.000000	3.755000	64.9
75%	2012.000000	75.700000	228.000000	22.000000	7.702500	441.5
max	2015.000000	89.000000	723.000000	1800.000000	17.870000	19479.9

Filtering on Pandas

```
[ ] #From the dataset summary,from the overall dataset, we see the max life expectancy is 89.
    #I would want to filter the dataset to see which countries have the max life expectancy
    health[health["life_expectancy"] == 89]
```

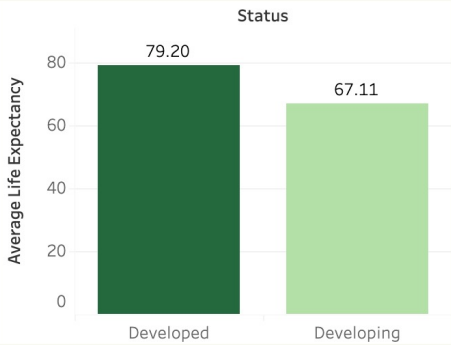
	country	year	status	life_expectancy	adult_mortality	infant_deaths	alcohol	percenta
241	Belgium	2014	Developed	89.0	76.0	0	12.60	
915	Finland	2014	Developing	89.0	78.0	0	8.80	



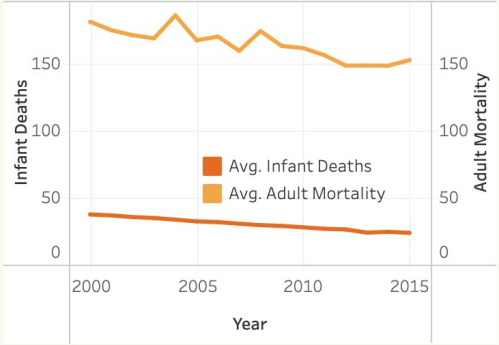
python™

2000 - 2015 GLOBAL LIFE EXPECTANCY

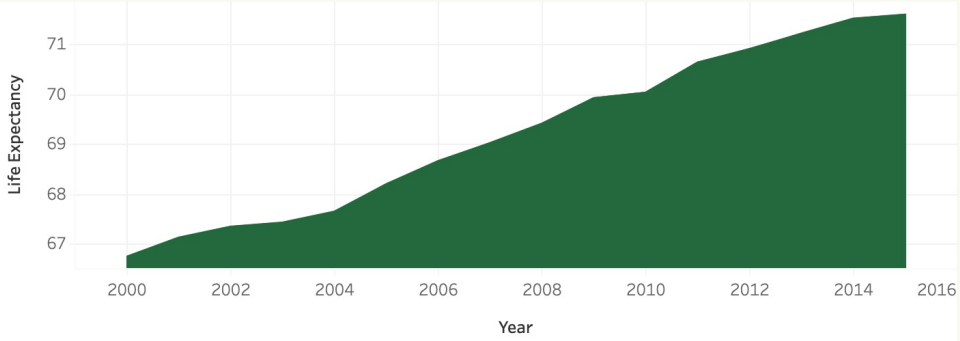
Status vs Life Expectancy



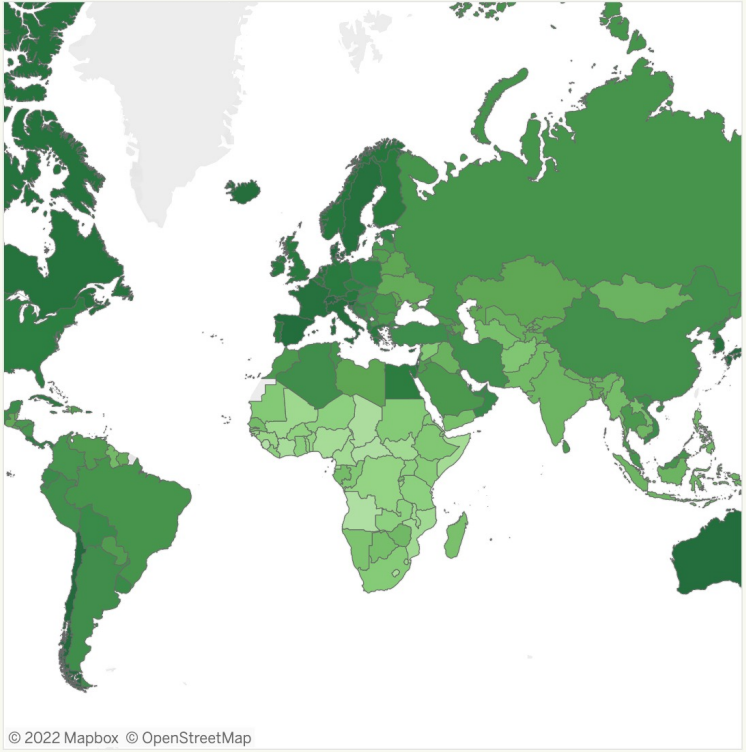
Adult Mortality & Infant Death Trend



Life Expectancy Over the Years



Life Expectancy Across Different Countries



Select A Year

2015 2015

Choose A Country

- (All)
- Afghanistan
- Albania
- Algeria
- Angola
- Antigua and ...
- Argentina
- Armenia
- Australia
- Austria
- Azerbaijan
- Bahamas
- Bahrain
- Bangladesh
- Barbados
- Belarus
- Belgium
- Belize
- Benin
- Bhutan
- Bolivia (Plur...
- Bosnia and ...
- Botswana
- Brazil
- Brunei Daru...

TOP 3 THINGS LEARNT

Educational

- Learnt Advanced Excel including pivot tables and power query.
- Enjoyed creating visualisations using Tableau and PowerBI
- Learnt SQL and Python
- Completed the Google Data Analytics Course

Personally

- I can do anything I put my mind to!
- I have a lot of drive and motivation
- Google is literally My Best Friend!

Career Wise

- **KPMG** Pushing LimITs Mentorship Programme
- Determination opens doors: I got a job offer and an interview!